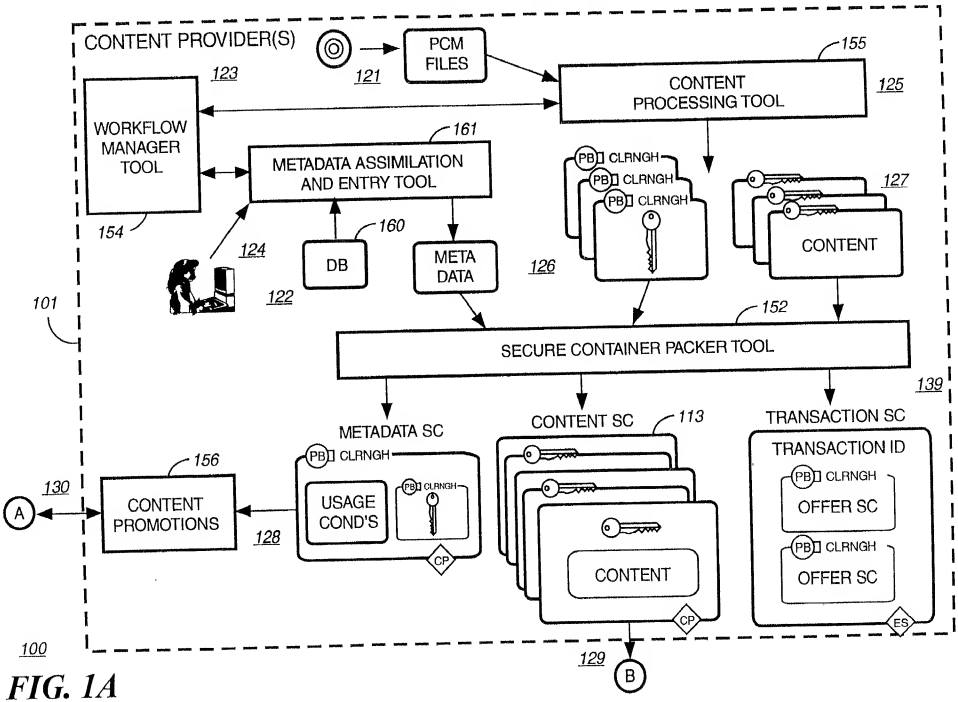

CONTENT PROVIDER(S)
PCM FILES
121
123
155
CONTENT PROCESSING TOOL
125
WORKFLOW MANAGER TOOL
154
161
METADATA ASSIMILATION AND ENTRY TOOL
PB CLRNGH
PB CLRNGH
PB CLRNGH
127
CONTENT
124
160
DB
META DATA
126
122
101
152
SECURE CONTAINER PACKER TOOL
139
METADATA SC
CONTENT SC
113
TRANSACTION SC
TRANSACTION ID
PB CLRNGH
OFFER SC
PB CLRNGH
OFFER SC
156
130
A
CONTENT PROMOTIONS
128
USAGE COND'S
PB CLRNGH
CP
CONTENT
CP
ES
100
129
B

FIG. 1A

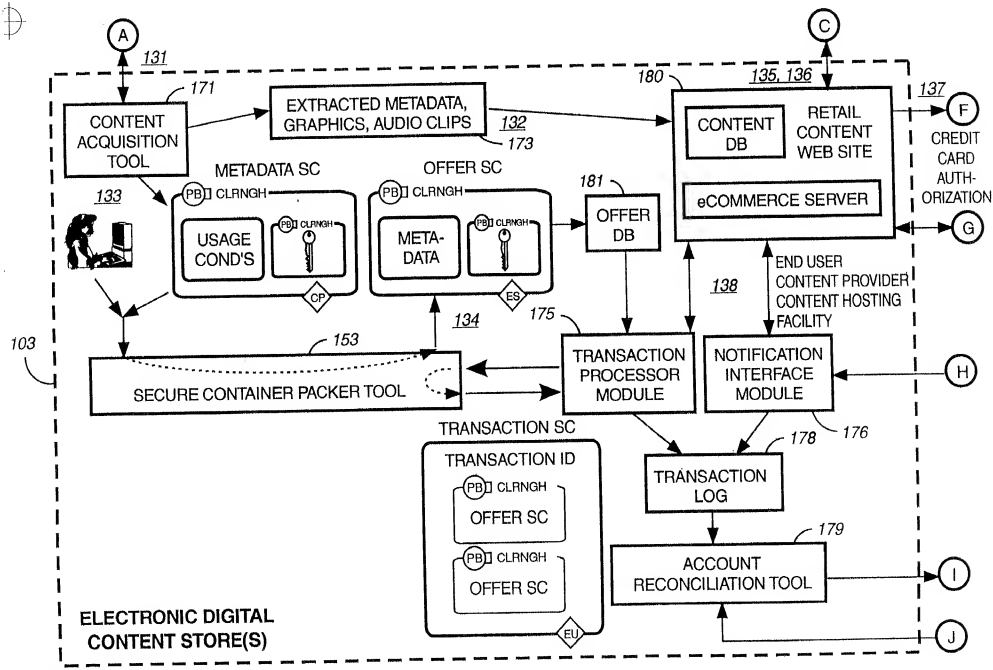

A
131
171
CONTENT ACQUISITION TOOL
EXTRACTED METADATA, GRAPHICS, AUDIO CLIPS
132
173
C
180
135, 136
137
CONTENT DB
RETAIL CONTENT WEB SITE
eCOMMERCE SERVER
F
CREDIT CARD AUTH-ORIZATION
G
133
METADATA SC
PB CLRNGH
USAGE COND'S
CLRNGH
CP
OFFER SC
META-DATA
ES
181
OFFER DB
138
END USER
CONTENT PROVIDER
CONTENT HOSTING FACILITY
103
153
134
175
SECURE CONTAINER PACKER TOOL
TRANSACTION PROCESSOR MODULE
NOTIFICATION INTERFACE MODULE
H
TRANSACTION SC
TRANSACTION ID
OFFER SC
EU
178
176
TRANSACTION LOG
179
ACCOUNT RECONCILIATION TOOL
I
J
ELECTRONIC DIGITAL CONTENT STORE(S)

FIG. 1B 100

T06T9D*ST9A8860

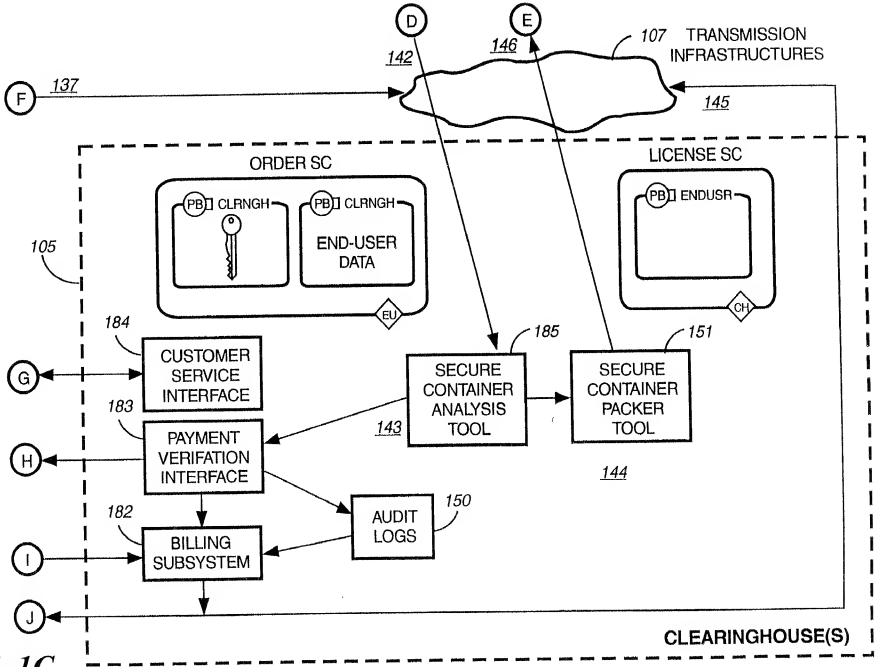
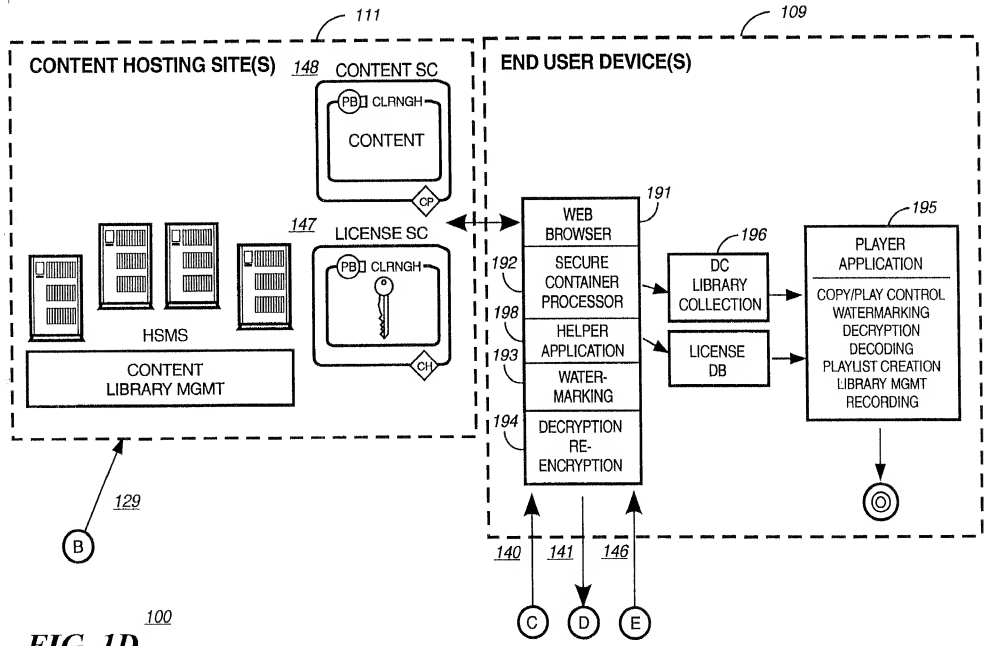


FIG. 1C


111
109
CONTENT HOSTING SITE(S)
148
CONTENT SC
PB
CLRNGH
CONTENT
CP
147
LICENSE SC
PB
CLRNGH
CH
HSMS
CONTENT
LIBRARY MGMT
END USER DEVICE(S)
191
WEB
BROWSER
192
SECURE
CONTAINER
PROCESSOR
198
HELPER
APPLICATION
193
WATER-
MARKING
194
DECRYPTION
RE-
ENCRYPTION
196
DC
LIBRARY
COLLECTION
LICENSE
DB
195
PLAYER
APPLICATION
COPY/PLAY CONTROL
WATERMARKING
DECRYPTION
DECODING
PLAYLIST CREATION
LIBRARY MGMT
RECORDING
129
B
140
141
146
C
D
E

100

FIG. 1D

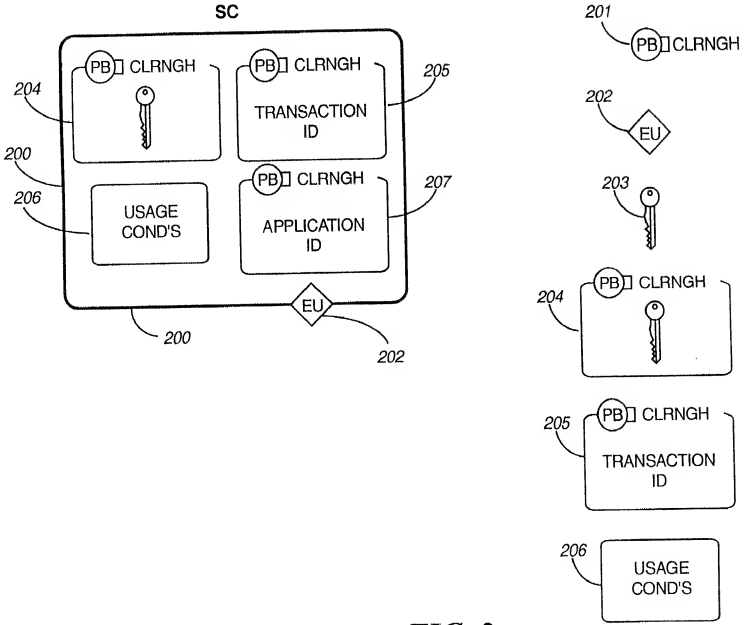

SC
PB CLRNGH
204
PB CLRNGH
TRANSACTION ID
205
200
206
USAGE COND'S
PB CLRNGH
APPLICATION ID
207
EU
200
202
201
PB CLRNGH
202
EU
203
PB CLRNGH
204
PB CLRNGH
205
TRANSACTION ID
206
USAGE COND'S

FIG. 2

T06T90'9T9:8860

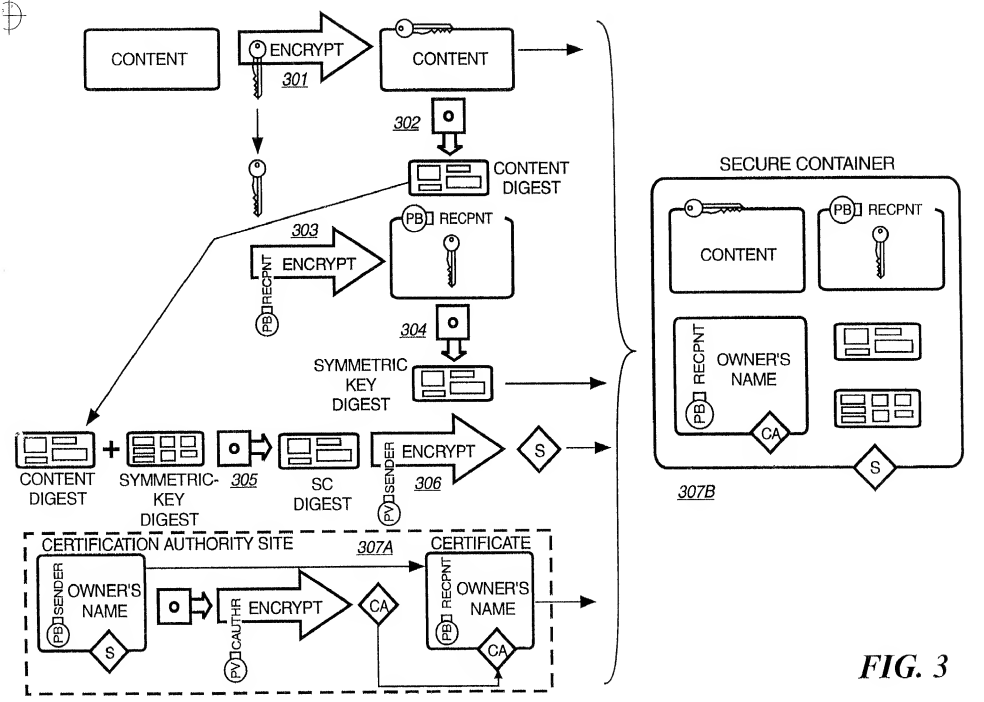


FIG. 3

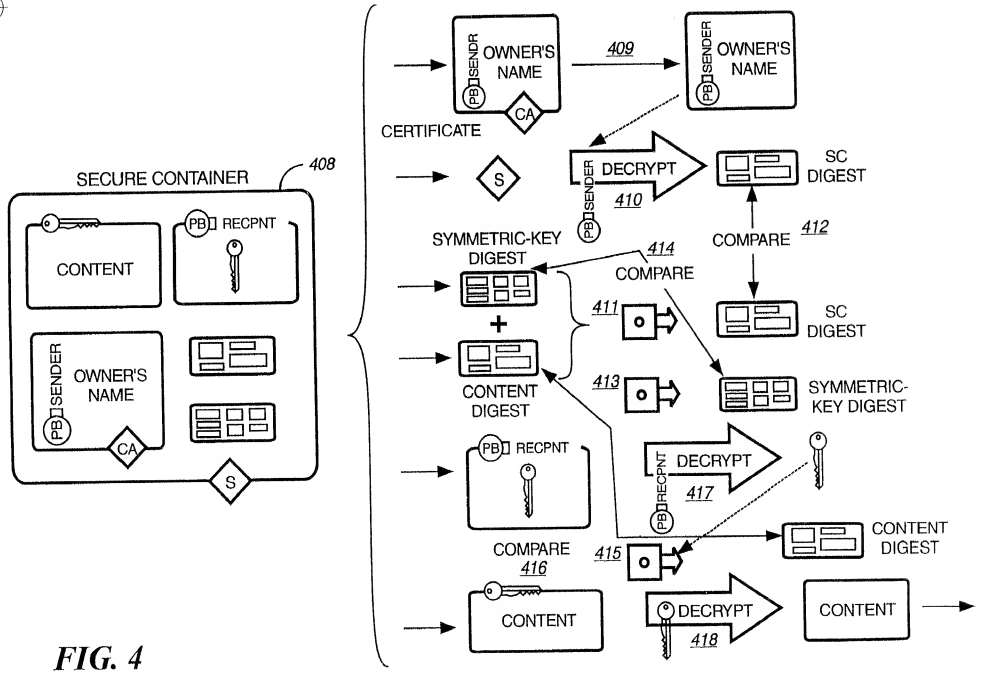

SECURE CONTAINER
408
CONTENT
PB RECPNT
PB SENDER
OWNER'S NAME
CA
S
OWNER'S NAME
PB SENDER
CA
CERTIFICATE
409
OWNER'S NAME
PB SENDER
S
DECRYPT
PB SENDER
410
SC DIGEST
SYMMETRIC-KEY DIGEST
414
COMPARE
412
COMPARE
411
SC DIGEST
CONTENT DIGEST
413
SYMMETRIC-KEY DIGEST
PB RECPNT
DECRYPT
PB RECPNT
417
CONTENT DIGEST
COMPARE
416
415
CONTENT
DECRYPT
418
CONTENT

FIG. 4

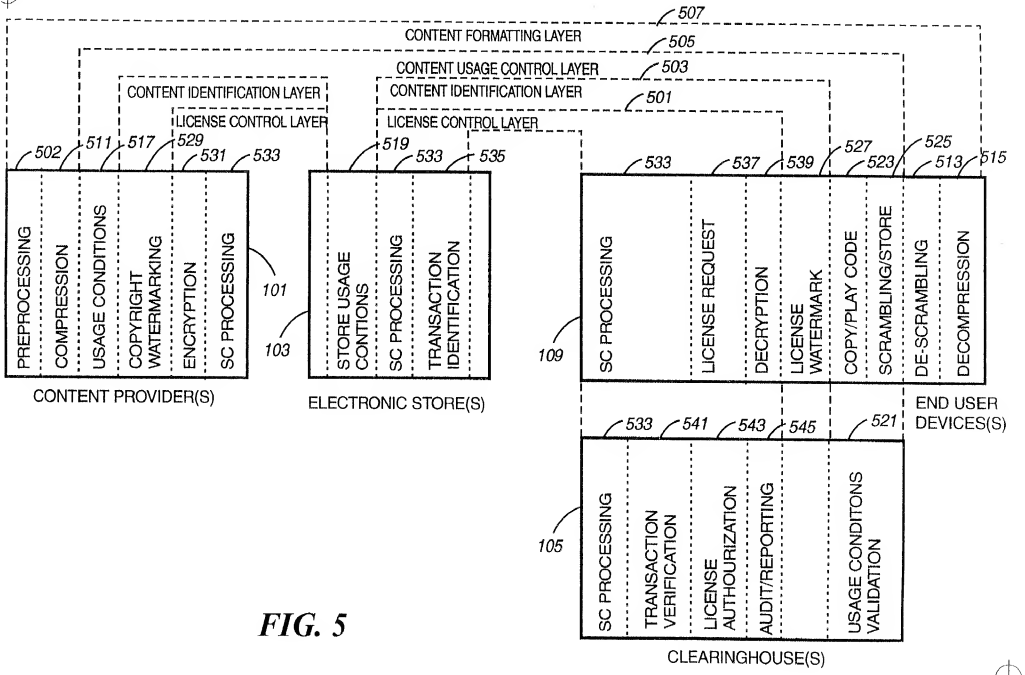

507
CONTENT FORMATTING LAYER
505
CONTENT USAGE CONTROL LAYER
503
CONTENT IDENTIFICATION LAYER
501
LICENSE CONTROL LAYER
CONTENT IDENTIFICATION LAYER
LICENSE CONTROL LAYER
502
511
517
529
531
533
519
533
535
533
537
539
527
523
525
513
515
PREPROCESSING
COMPRESSION
USAGE CONDITIONS
COPYRIGHT WATERMARKING
ENCRYPTION
SC PROCESSING
101
103
STORE USAGE CONTIONS
SC PROCESSING
TRANSACTION IDENTIFICATION
109
SC PROCESSING
LICENSE REQUEST
DECRYPTION
LICENSE WATERMARK
COPY/PLAY CODE
SCRAMBLING/STORE
DE-SCRAMBLING
DECOMPRESSION
CONTENT PROVIDER(S)
ELECTRONIC STORE(S)
END USER DEVICES(S)
533
541
543
545
521
105
SC PROCESSING
TRANSACTION VERIFICATION
LICENSE AUTHOURIZATION
AUDIT/REPORTING
USAGE CONDITONS VALIDATION
CLEARINGHOUSE(S)

FIG. 5

TD6T90' ST9h8860

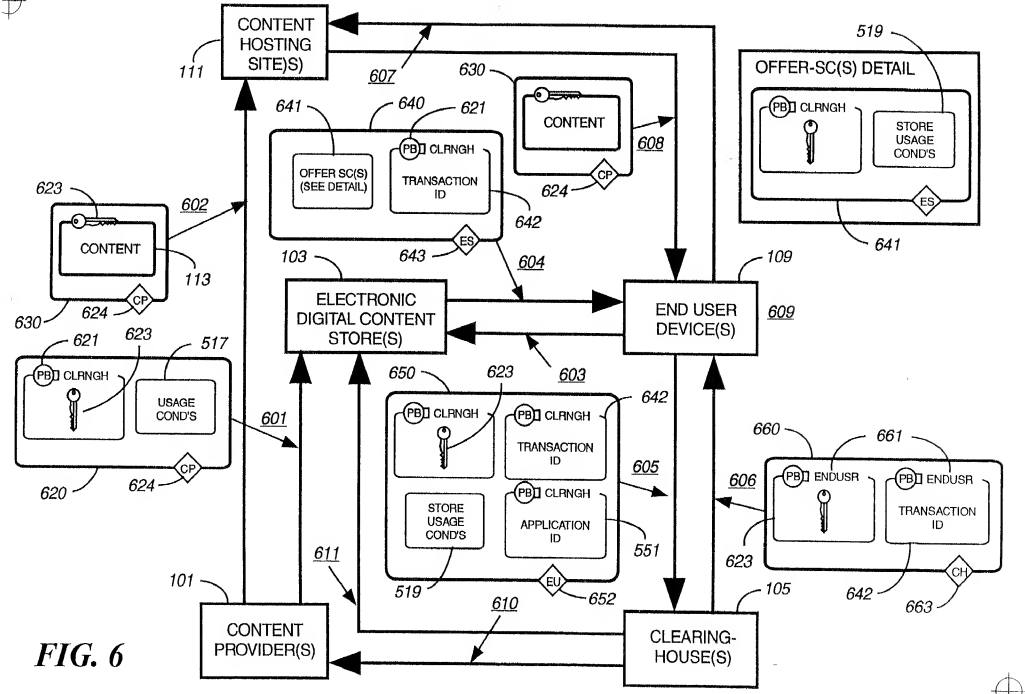
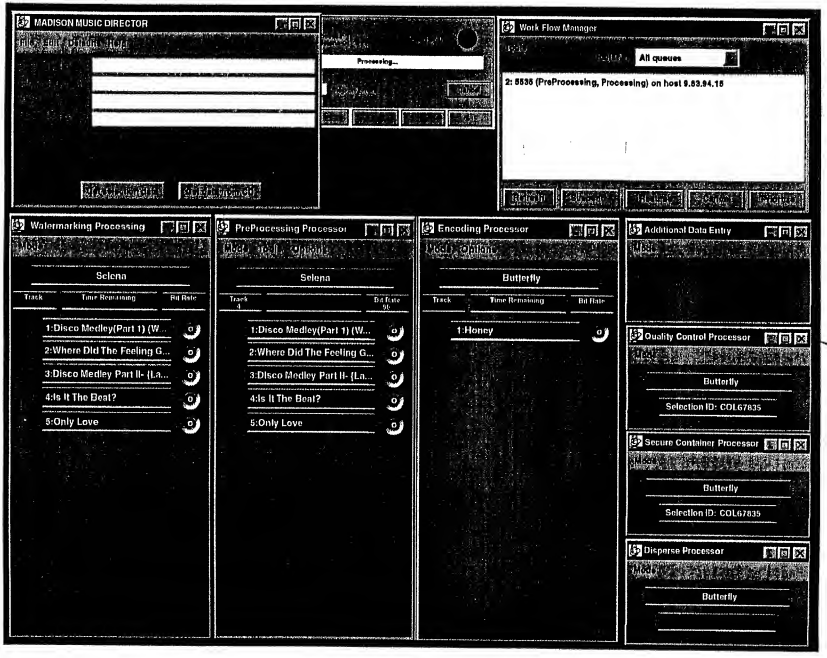


FIG. 6

T06T90'8T9h8980



700

FIG. 7

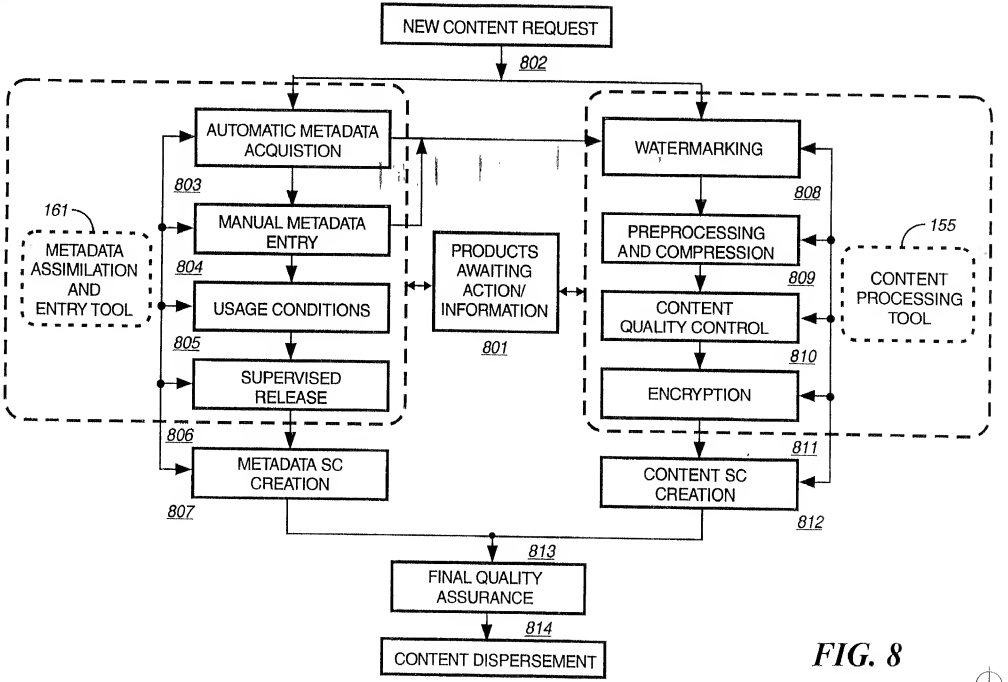

NEW CONTENT REQUEST
802
AUTOMATIC METADATA ACQUISTION
803
MANUAL METADATA ENTRY
804
USAGE CONDITIONS
805
SUPERVISED RELEASE
806
METADATA SC CREATION
807
161
METADATA ASSIMILATION AND ENTRY TOOL
PRODUCTS AWAITING ACTION/ INFORMATION
801
WATERMARKING
808
PREPROCESSING AND COMPRESSION
809
CONTENT QUALITY CONTROL
810
ENCRYPTION
811
CONTENT SC CREATION
812
155
CONTENT PROCESSING TOOL
813
FINAL QUALITY ASSURANCE
814
CONTENT DISPERSEMENT

FIG. 8

T06190 "3191860

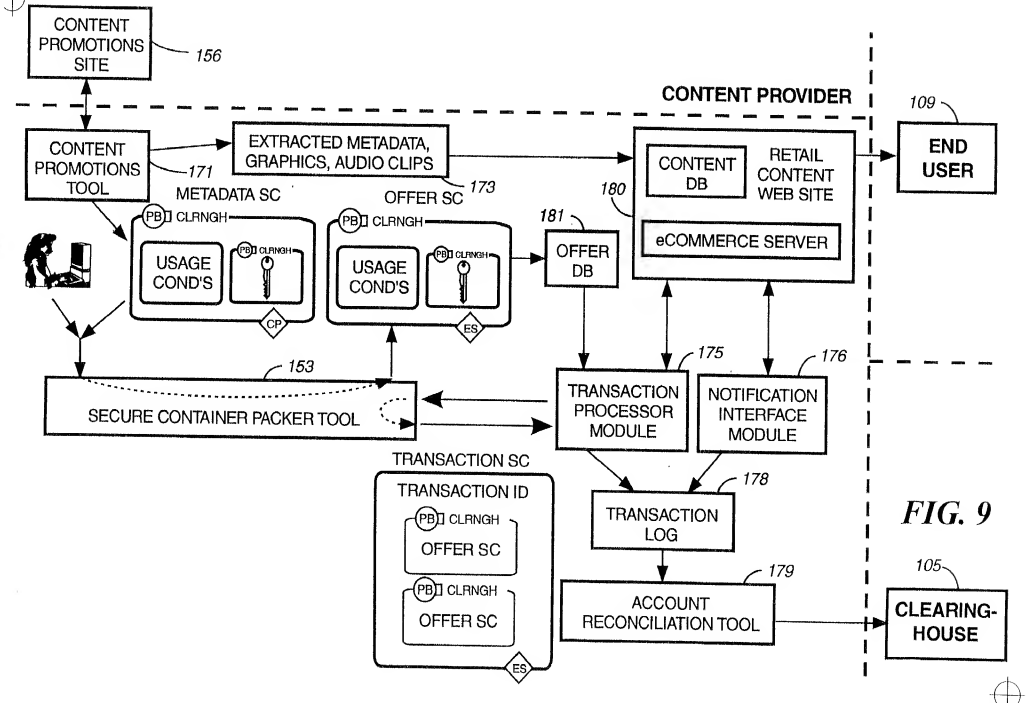


FIG. 9

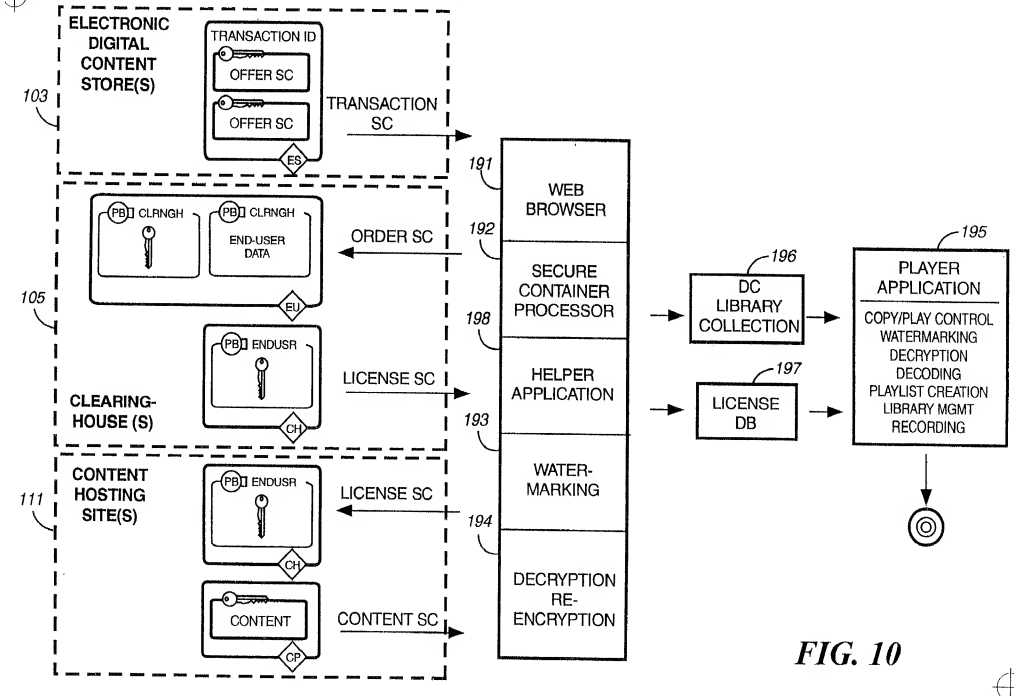

ELECTRONIC DIGITAL CONTENT STORE(S)
103
TRANSACTION ID
OFFER SC
OFFER SC
ES
TRANSACTION SC
191
WEB BROWSER
192
SECURE CONTAINER PROCESSOR
198
HELPER APPLICATION
193
WATER-MARKING
194
DECRYPTION RE-ENCRYPTION
ORDER SC
LICENSE SC
CONTENT SC
105
PB CLRNGH
PB CLRNGH
END-USER DATA
EU
PB ENDUSR
CH
CLEARING-HOUSE (S)
111
CONTENT HOSTING SITE(S)
PB ENDUSR
CH
CONTENT
CP
196
DC LIBRARY COLLECTION
197
LICENSE DB
195
PLAYER APPLICATION
COPY/PLAY CONTROL
WATERMARKING
DECRYPTION
DECODING
PLAYLIST CREATION
LIBRARY MGMT
RECORDING

FIG. 10

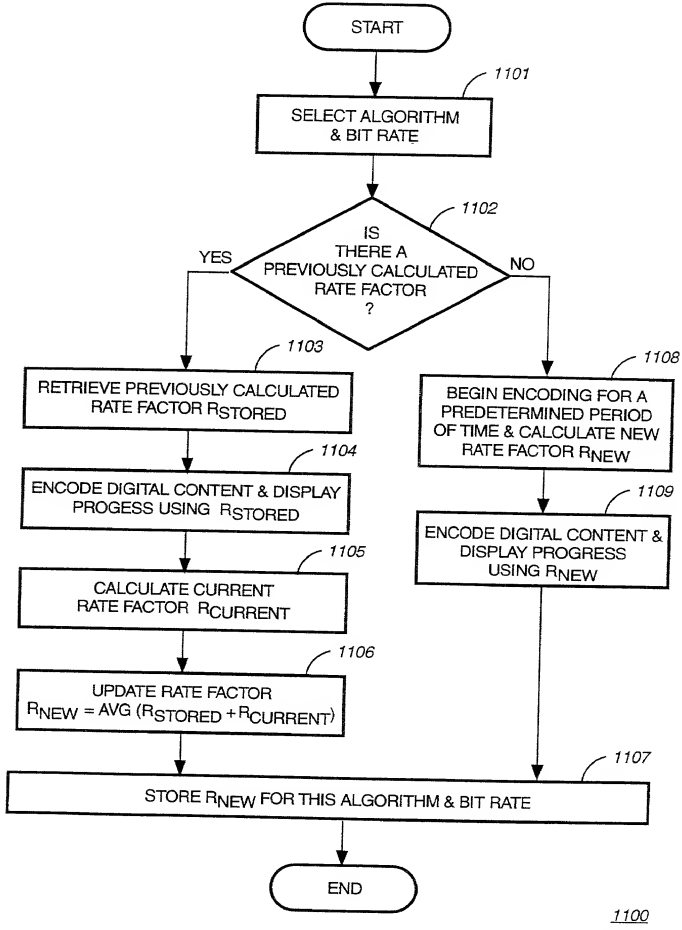

START
1101
SELECT ALGORITHM & BIT RATE
1102
IS THERE A PREVIOUSLY CALCULATED RATE FACTOR ?
YES
NO
1103
RETRIEVE PREVIOUSLY CALCULATED RATE FACTOR RSTORED
1104
ENCODE DIGITAL CONTENT & DISPLAY PROGESS USING RSTORED
1105
CALCULATE CURRENT RATE FACTOR RCURRENT
1106
UPDATE RATE FACTOR RNEW = AVG (RSTORED + RCURRENT)
1108
BEGIN ENCODING FOR A PREDETERMINED PERIOD OF TIME & CALCULATE NEW RATE FACTOR RNEW
1109
ENCODE DIGITAL CONTENT & DISPLAY PROGRESS USING RNEW
1107
STORE RNEW FOR THIS ALGORITHM & BIT RATE
END
1100

FIG. 11

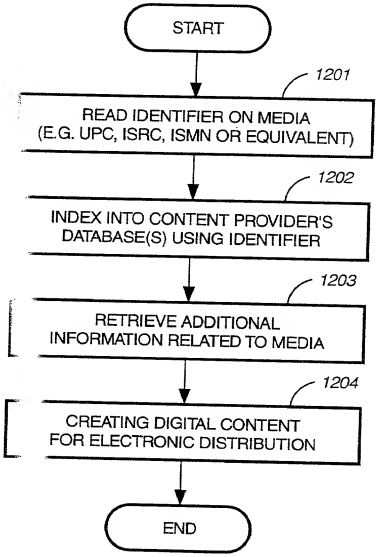

START
1201
READ IDENTIFIER ON MEDIA
(E.G. UPC, ISRC, ISMN OR EQUIVALENT)
1202
INDEX INTO CONTENT PROVIDER'S
DATABASE(S) USING IDENTIFIER
1203
RETRIEVE ADDITIONAL
INFORMATION RELATED TO MEDIA
1204
CREATING DIGITAL CONTENT
FOR ELECTRONIC DISTRIBUTION
END

FIG. 12

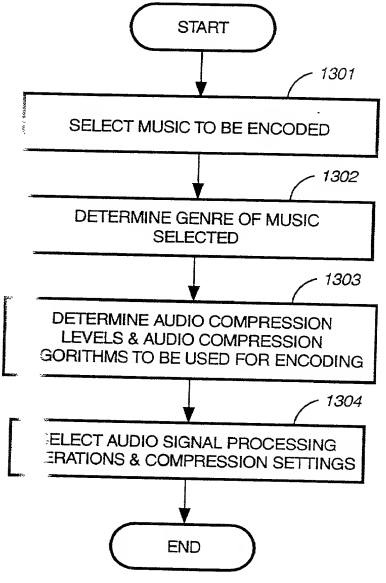

START
1301
SELECT MUSIC TO BE ENCODED
1302
DETERMINE GENRE OF MUSIC SELECTED
1303
DETERMINE AUDIO COMPRESSION LEVELS & AUDIO COMPRESSION GORITHMS TO BE USED FOR ENCODING
1304
ELECT AUDIO SIGNAL PROCESSING ERATIONS & COMPRESSION SETTINGS
END

FIG. 13

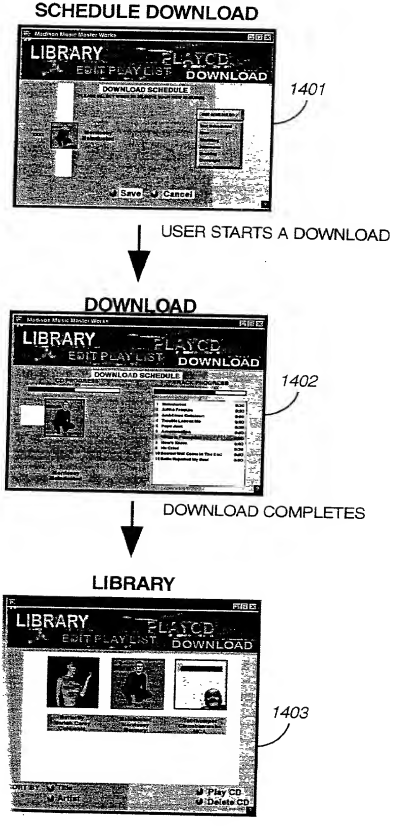

SCHEDULE DOWNLOAD
LIBRARY
PLAYCD
EDIT PLAY LIST
DOWNLOAD
DOWNLOAD SCHEDULE
Save
Cancel
1401
USER STARTS A DOWNLOAD
DOWNLOAD
LIBRARY
PLAYCD
EDIT PLAY LIST
DOWNLOAD
DOWNLOAD SCHEDULE
1402
DOWNLOAD COMPLETES
LIBRARY
LIBRARY
PLAYCD
EDIT PLAY LIST
DOWNLOAD
Play CD
Delete CD
1403

FIG. 14

T06T90'8T9%8860

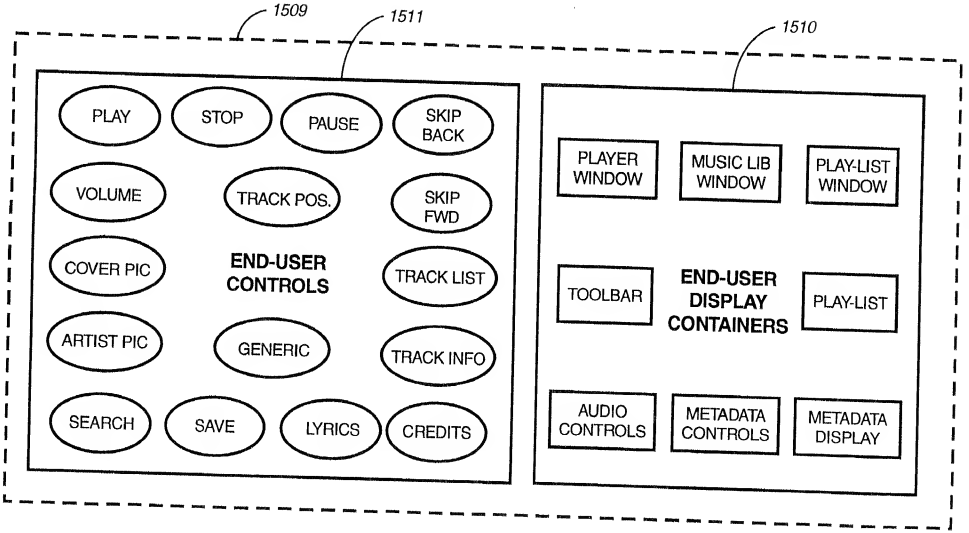


FIG. 15A

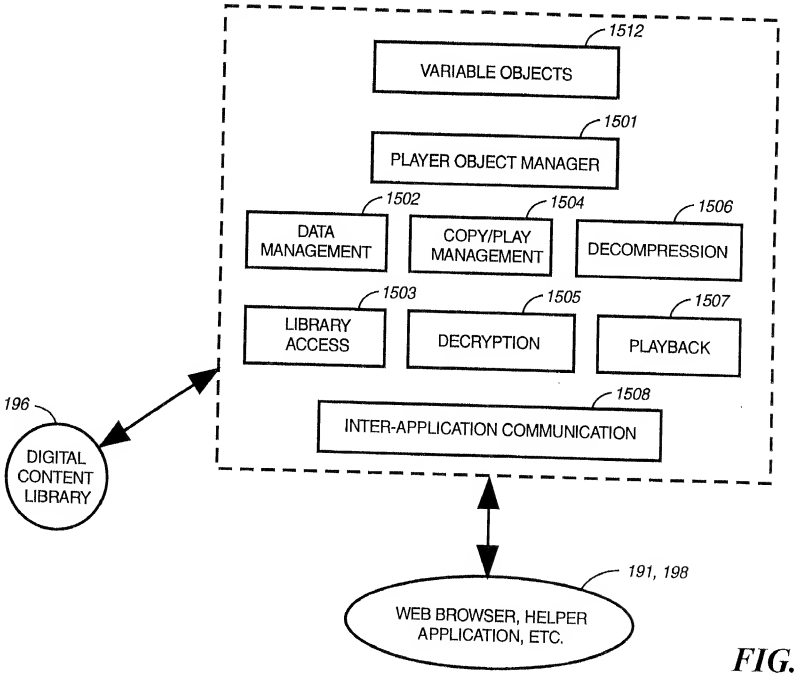

1512
VARIABLE OBJECTS
1501
PLAYER OBJECT MANAGER
1502
DATA MANAGEMENT
1504
COPY/PLAY MANAGEMENT
1506
DECOMPRESSION
1503
LIBRARY ACCESS
1505
DECRYPTION
1507
PLAYBACK
1508
INTER-APPLICATION COMMUNICATION
196
DIGITAL CONTENT LIBRARY
191, 198
WEB BROWSER, HELPER APPLICATION, ETC.

FIG. 15B

TD6190 STD8860

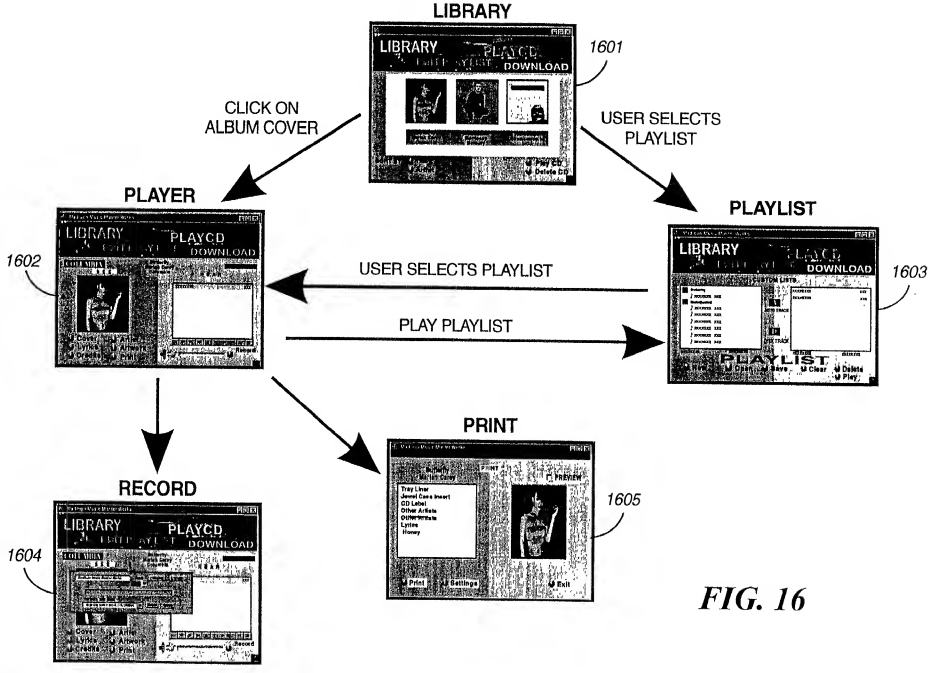


FIG. 16

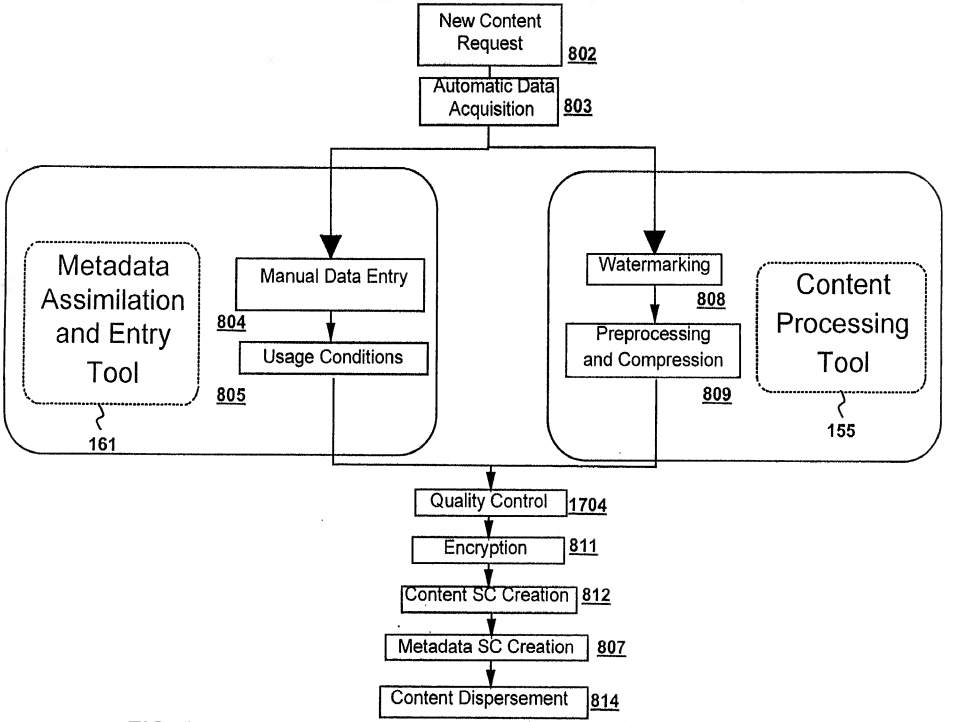
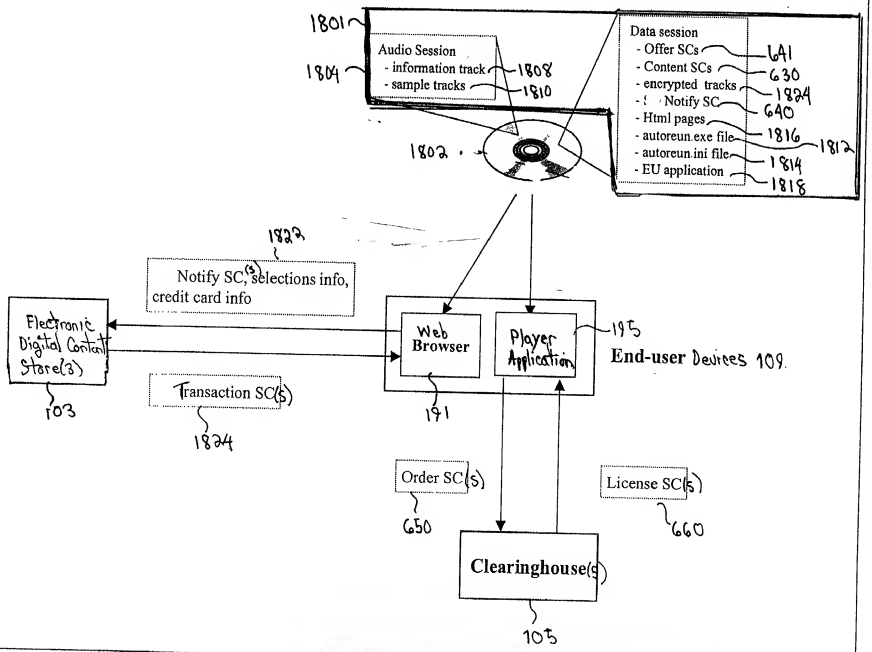


FIG. 17 Alternate Embodiment for the Work Flow Manager

T06T90' ST9n8860

FIG. 18 **Buying Transaction Flow With a Super-distribution CD**



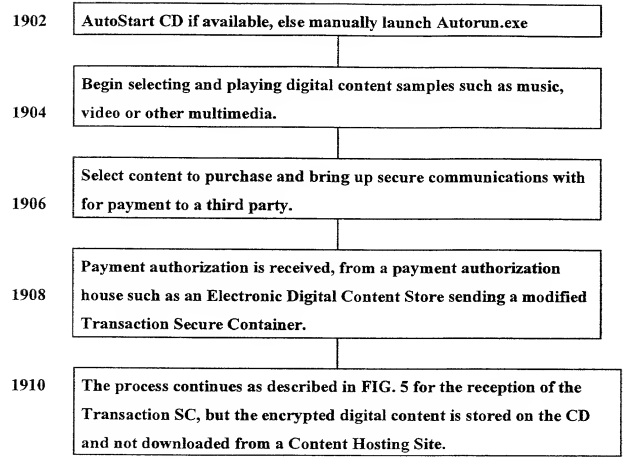

1902
AutoStart CD if available, else manually launch Autorun.exe
Begin selecting and playing digital content samples such as music, video or other multimedia.
1904
Select content to purchase and bring up secure communications with for payment to a third party.
1906
Payment authorization is received, from a payment authorization house such as an Electronic Digital Content Store sending a modified Transaction Secure Container.
1908
1910
The process continues as described in FIG. 5 for the reception of the Transaction SC, but the encrypted digital content is stored on the CD and not downloaded from a Content Hosting Site.

FIG. 19

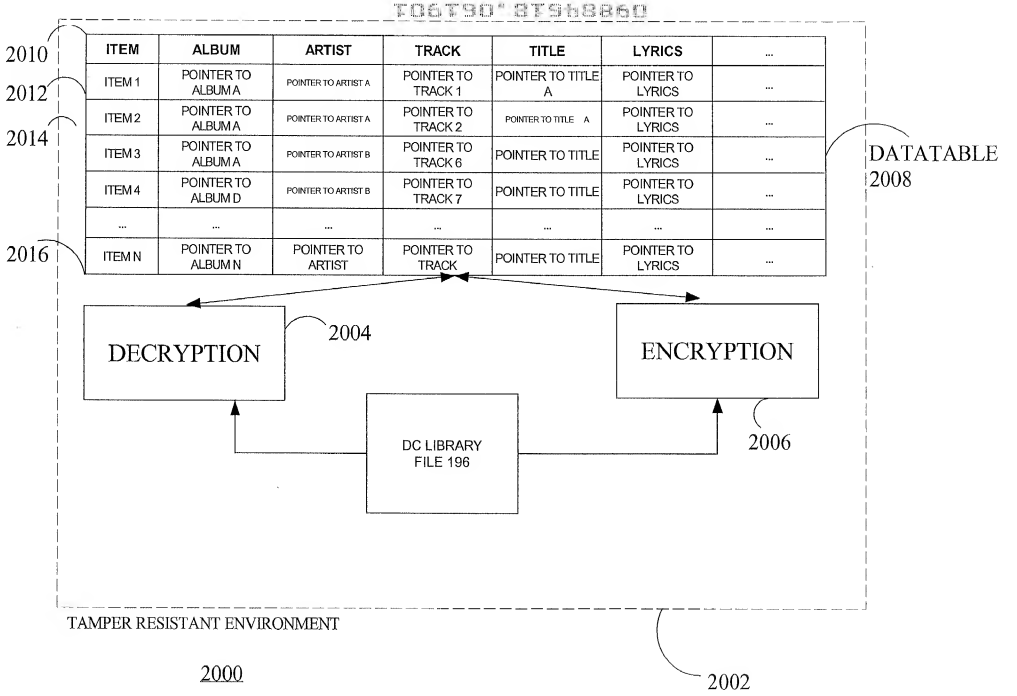

2010
2012
2014
2016
ITEM
ALBUM
ARTIST
TRACK
TITLE
LYRICS
...
ITEM 1
POINTER TO ALBUM A
POINTER TO ARTIST A
POINTER TO TRACK 1
POINTER TO TITLE A
POINTER TO LYRICS
ITEM 2
POINTER TO ALBUM A
POINTER TO ARTIST A
POINTER TO TRACK 2
POINTER TO TITLE A
POINTER TO LYRICS
ITEM 3
POINTER TO ALBUM A
POINTER TO ARTIST B
POINTER TO TRACK 6
POINTER TO TITLE
POINTER TO LYRICS
ITEM 4
POINTER TO ALBUM D
POINTER TO ARTIST B
POINTER TO TRACK 7
POINTER TO TITLE
POINTER TO LYRICS
ITEM N
POINTER TO ALBUM N
POINTER TO ARTIST
POINTER TO TRACK
POINTER TO TITLE
POINTER TO LYRICS
DATATABLE
2008
DECRYPTION
2004
ENCRYPTION
2006
DC LIBRARY FILE 196
TAMPER RESISTANT ENVIRONMENT
2000
2002

FIG. 20

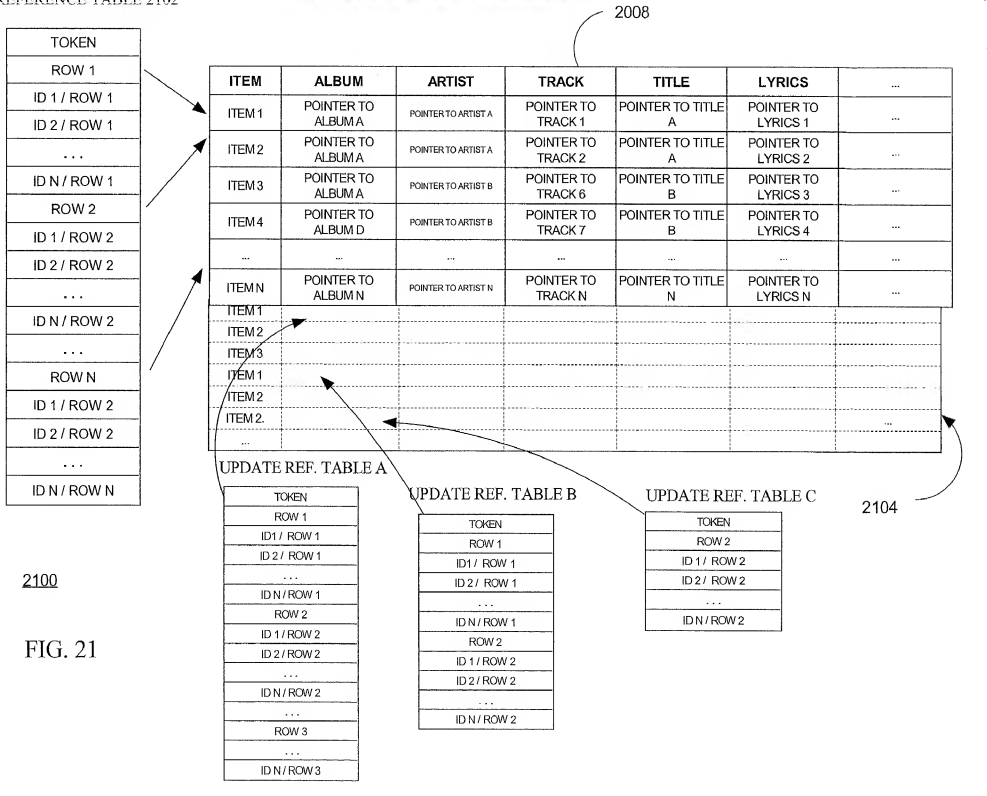

REFERENCE TABLE 2102
TOKEN
ROW 1
ID 1 / ROW 1
ID 2 / ROW 1
. . .
ID N / ROW 1
ROW 2
ID 1 / ROW 2
ID 2 / ROW 2
. . .
ID N / ROW 2
. . .
ROW N
ID 1 / ROW 2
ID 2 / ROW 2
. . .
ID N / ROW N
2008
ITEM
ALBUM
ARTIST
TRACK
TITLE
LYRICS
ITEM 1
POINTER TO ALBUM A
POINTER TO ARTIST A
POINTER TO TRACK 1
POINTER TO TITLE A
POINTER TO LYRICS 1
ITEM 2
POINTER TO ALBUM A
POINTER TO ARTIST A
POINTER TO TRACK 2
POINTER TO TITLE A
POINTER TO LYRICS 2
ITEM 3
POINTER TO ALBUM A
POINTER TO ARTIST B
POINTER TO TRACK 6
POINTER TO TITLE B
POINTER TO LYRICS 3
ITEM 4
POINTER TO ALBUM D
POINTER TO ARTIST B
POINTER TO TRACK 7
POINTER TO TITLE B
POINTER TO LYRICS 4
ITEM N
POINTER TO ALBUM N
POINTER TO ARTIST N
POINTER TO TRACK N
POINTER TO TITLE N
POINTER TO LYRICS N
2104
UPDATE REF. TABLE A
UPDATE REF. TABLE B
UPDATE REF. TABLE C
2100

FIG. 21

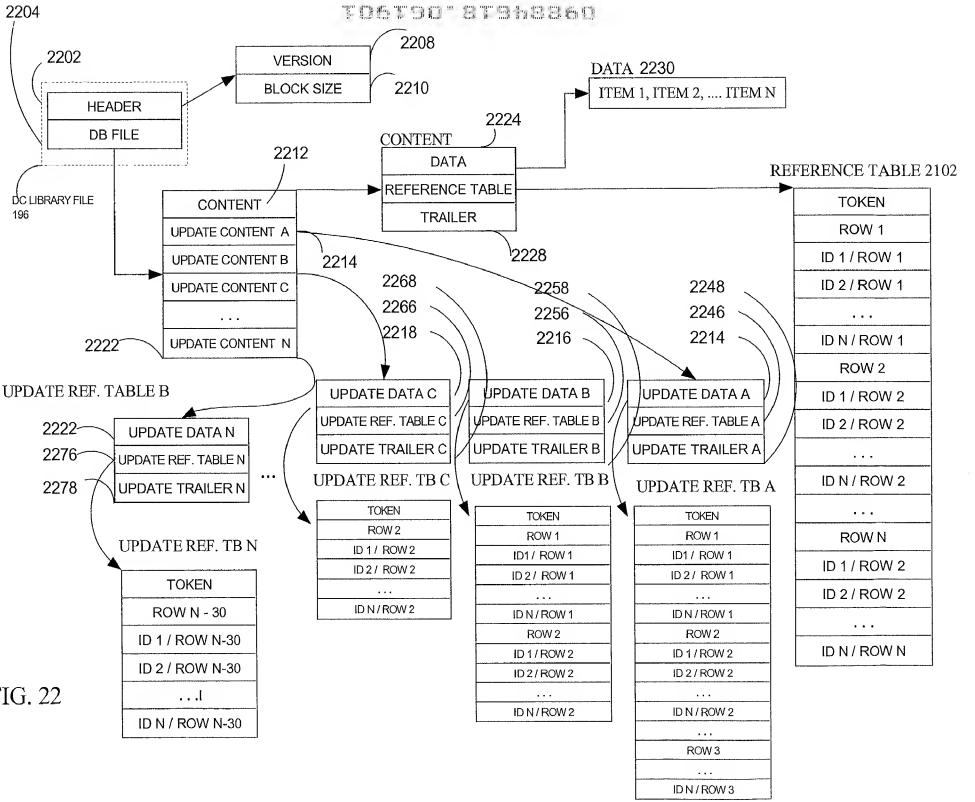
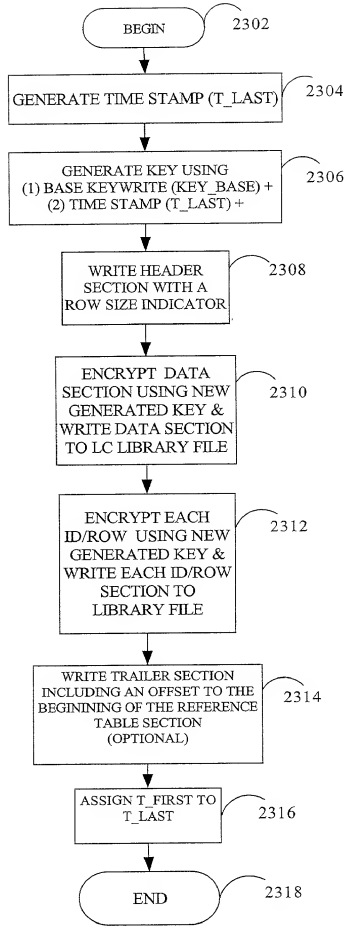

2204
2202
HEADER
DB FILE
DC LIBRARY FILE 196
VERSION
BLOCK SIZE
2208
2210
DATA 2230
ITEM 1, ITEM 2, ... ITEM N
2224
CONTENT
DATA
REFERENCE TABLE
TRAILER
2212
CONTENT
UPDATE CONTENT A
UPDATE CONTENT B
UPDATE CONTENT C
...
UPDATE CONTENT N
2214
2222
2228
REFERENCE TABLE 2102
TOKEN
ROW 1
ID 1 / ROW 1
ID 2 / ROW 1
...
ID N / ROW 1
ROW 2
ID 1 / ROW 2
ID 2 / ROW 2
...
ID N / ROW 2
ROW N
ID 1 / ROW 2
ID 2 / ROW 2
...
ID N / ROW N
2268
2266
2218
2258
2256
2216
2248
2246
2214
UPDATE REF. TABLE B
2222
UPDATE DATA N
2276
UPDATE REF. TABLE N
2278
UPDATE TRAILER N
UPDATE DATA C
UPDATE REF. TABLE C
UPDATE TRAILER C
UPDATE DATA B
UPDATE REF. TABLE B
UPDATE TRAILER B
UPDATE DATA A
UPDATE REF. TABLE A
UPDATE TRAILER A
UPDATE REF. TB N
TOKEN
ROW N - 30
ID 1 / ROW N-30
ID 2 / ROW N-30
...I
ID N / ROW N-30
UPDATE REF. TB C
TOKEN
ROW 2
ID 1 / ROW 2
ID 2 / ROW 2
...
ID N / ROW 2
UPDATE REF. TB B
TOKEN
ROW 1
ID1 / ROW 1
ID 2 / ROW 1
...
ID N / ROW 1
ROW 2
ID 1 / ROW 2
ID 2 / ROW 2
...
ID N / ROW 2
UPDATE REF. TB A
TOKEN
ROW 1
ID1 / ROW 1
ID 2 / ROW 1
...
ID N / ROW 1
ROW 2
ID 1 / ROW 2
ID 2 / ROW 2
...
ID N / ROW 2
...
ROW 3
...
ID N / ROW 3

FIG. 22

WRITE FLOW
WITHOUT UPDATES

FIG. 23

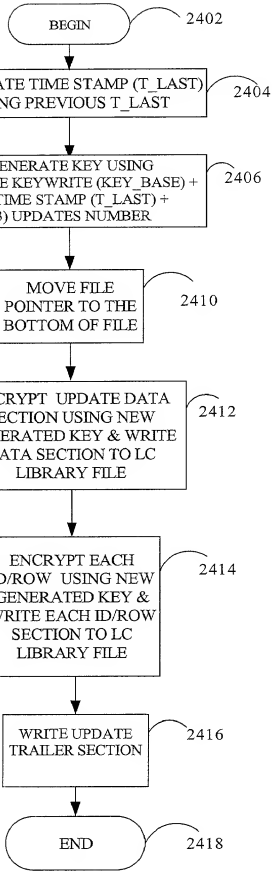
2300



WRITE FLOW
FOR UPDATES

FIG. 24

2400



READ FLOW

FIG. 25A

2500

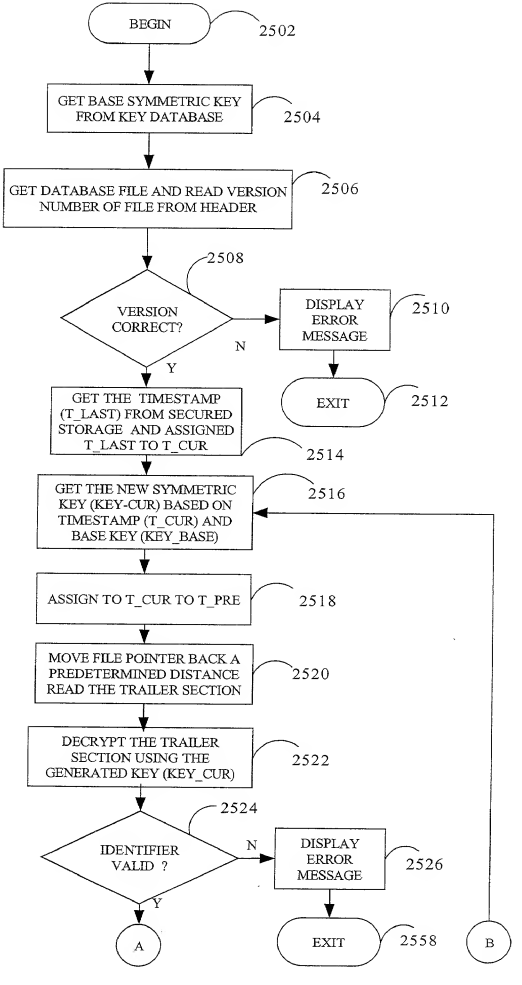
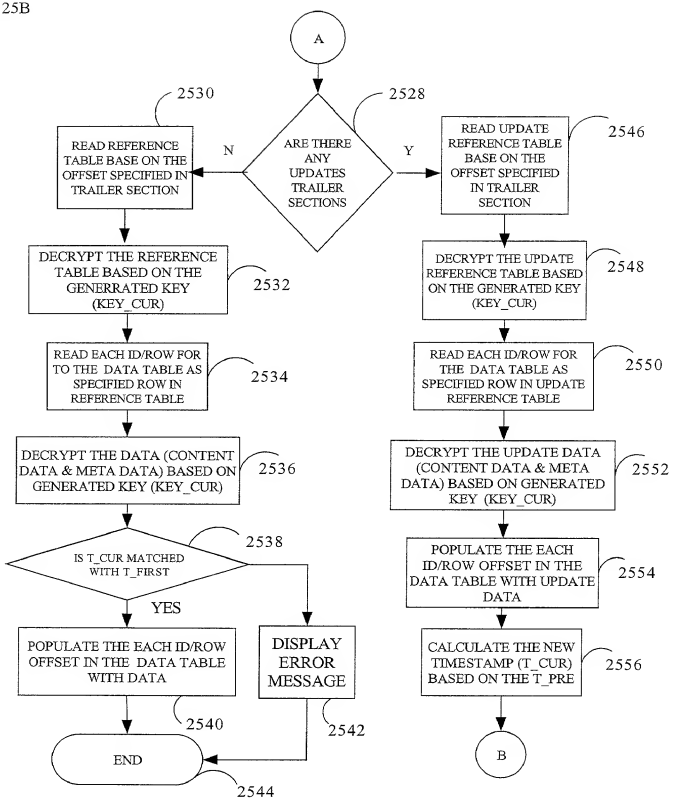


FIG. 25B


A
2528
ARE THERE ANY UPDATES TRAILER SECTIONS
N
Y
2530
READ REFERENCE TABLE BASE ON THE OFFSET SPECIFIED IN TRAILER SECTION
2546
READ UPDATE REFERENCE TABLE BASE ON THE OFFSET SPECIFIED IN TRAILER SECTION
DECRYPT THE REFERENCE TABLE BASED ON THE GENERRATED KEY (KEY_CUR)
2532
DECRYPT THE UPDATE REFERENCE TABLE BASED ON THE GENERATED KEY (KEY_CUR)
2548
READ EACH ID/ROW FOR TO THE DATA TABLE AS SPECIFIED ROW IN REFERENCE TABLE
2534
READ EACH ID/ROW FOR THE DATA TABLE AS SPECIFIED ROW IN UPDATE REFERENCE TABLE
2550
DECRYPT THE DATA (CONTENT DATA & META DATA) BASED ON GENERATED KEY (KEY_CUR)
2536
DECRYPT THE UPDATE DATA (CONTENT DATA & META DATA) BASED ON GENERATED KEY (KEY_CUR)
2552
IS T_CUR MATCHED WITH T_FIRST
2538
YES
POPULATE THE EACH ID/ROW OFFSET IN THE DATA TABLE WITH UPDATE DATA
2554
POPULATE THE EACH ID/ROW OFFSET IN THE DATA TABLE WITH DATA
DISPLAY ERROR MESSAGE
CALCULATE THE NEW TIMESTAMP (T_CUR) BASED ON THE T_PRE
2556
2540
2542
END
B
2544